

02/25/14    Agenda:

- Remediation packet is on my web site. If you are planning on retaking the Chapter 7 test, I need it today. I also need any missing homework and the reflection sheet.
- Update Properties Book
  - Fill in diagrams on the cover
  - Properties of a Rectangle
- Section 8.4 - Properties of Rectangles
- Review Quiz
- Homework
  - Worksheet 7 - Rectangles

## Section 8.4 - Properties of Rectangles

### Target 8E

February 25, 2014

Goal: Apply properties of special quadrilaterals (rectangles, rhombi, squares, kites, and trapezoids) to find missing information.

Quadrilateral

Four sided figure

Sum of angles =  $360^\circ$



Parallelogram

All properties of a Quadrilateral plus:

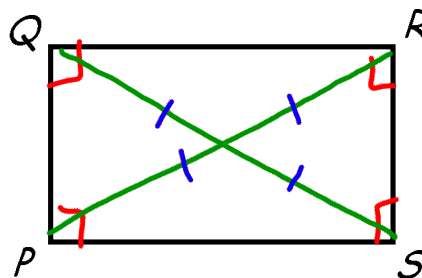
- Opposite sides  $\parallel$
- Opposite sides  $\cong$
- Opposite angles  $\cong$
- Consecutive angles supplementary
- Diagonals bisect each other



Rectangle

All properties of a Parallelogram plus:

- All 4! ANGLES ARE  
RIGHT ANGLES



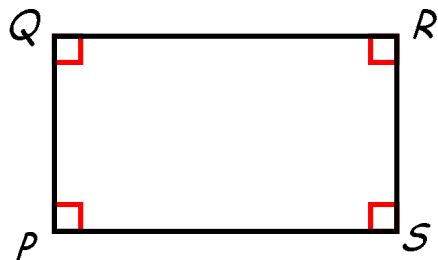
- DIAGONALS  
ARE  $\cong$

## Section 8.4 - Properties of Rectangles

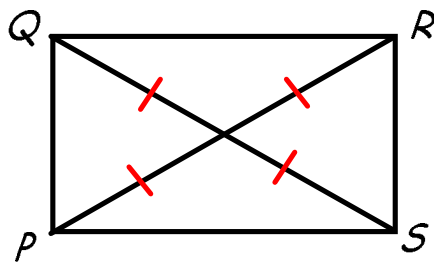
### Target 8E

February 25, 2014

#### Proving it's a Rectangle



\* A Quadrilateral is a rectangle if and only if it has 4 right angles.



\* A Parallelogram is a rectangle if and only if its diagonals are congruent.

## Section 8.4 - Properties of Rectangles

### Target 8E

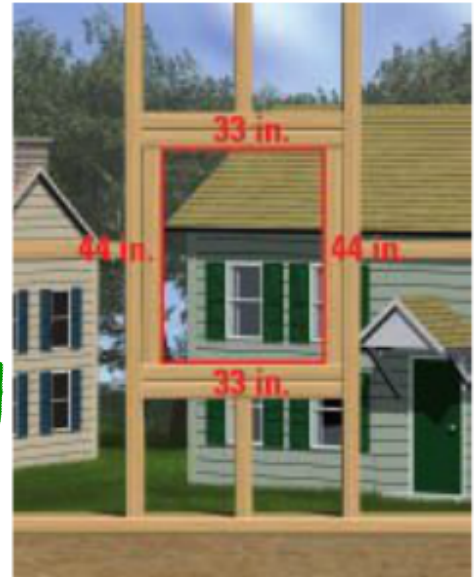
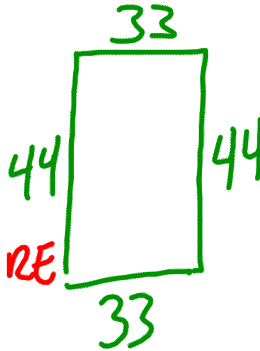
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**CARPENTRY** You are building a frame for a window. The window will be installed in the opening shown in the diagram.

- a. The opening must be a rectangle. Given the measurements in the diagram, can you assume that it is? *Explain.*

QUAD Y  
↓  
□ Y  
↓  
RECT.

NO  
NEED MORE  
INFO



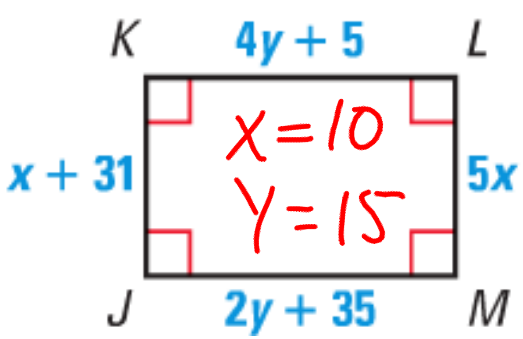
- b. You measure the diagonals of the opening. The diagonals are 54.8 inches and 55.3 inches. What can you conclude about the shape of the opening?

## Section 8.4 - Properties of Rectangles

### Target 8E

February 25, 2014

Solve for  $x$  and  $y$



$$\begin{aligned}
 4y + 5 &= 2y + 35 \\
 -2y &\quad -2y \\
 \hline
 2y + 5 &= 35 \\
 -5 &\quad -5 \\
 \hline
 2y &= 30
 \end{aligned}$$

$$\begin{aligned}
 x + 31 &= 5x - 9 \\
 -x &\quad -x \\
 \hline
 31 &= 4x - 9 \\
 +9 &\quad +9 \\
 \hline
 40 &= 4x \\
 \frac{40}{4} &= \frac{4x}{4} \\
 10 &= x
 \end{aligned}$$

**RECTANGLE** The diagonals of rectangle  $QRST$  intersect at  $P$ . Given that  $m\angle PTS = 34^\circ$  and  $QS = 10$ , find the indicated measure.

38.  $m\angle SRT$

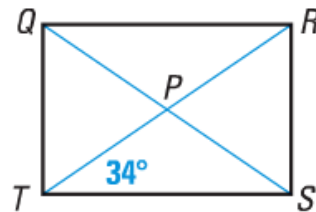
39.  $m\angle QPR$

40.  $QP$

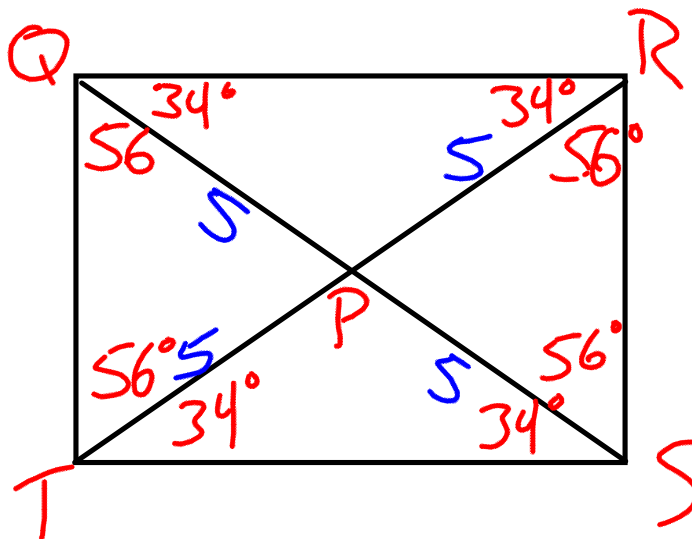
41.  $RP$

42.  $QR$

43.  $RS$



QR  
RS



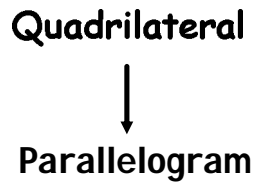
$$\overline{QS} = 10$$

$$\overline{QP} = 5$$

$$\overline{RP} = 5$$

## Properties of a Parallelogram.

Page 1

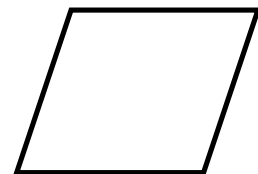


### Parallelogram:

A quadrilateral with BOTH pairs of opposite sides parallel.

### Properties:

- Opposite sides are congruent.
- Opposite angles are congruent.
- Consecutive angles are supplementary.
- The diagonals bisect each other.



## Quadrilaterals Book

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### Proving a Quadrilateral is a Parallelogram.

#### Proving it's a Parallelogram:

Page 2

Show any of the following:

- Both pairs of opposite sides parallel.
- Both pairs of opposite sides are congruent.
- Both pairs of opposite angles are congruent.
- ONE pair of opposite sides are both  
congruent and parallel
- The diagonals bisect each other.



## Properties of a Rectangle.

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Quadrilateral



Parallelogram



Rectangle



### Rectangle Properties:

- All properties of a Parallelogram plus:
  - It has 4 right angles.
  - The diagonals are congruent.

### Proving it's a Rectangle:

- If a quadrilateral has 4 right angles, it's a Rectangle.
- If the diagonals of a parallelogram are congruent, it's a Rectangle.